Human Engineering and Habitability: The Critical Challenges for the International Space Station.

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Abstract: As the duration of spaceflight increases, the impact of habitability on mission success becomes significant. Habitability is based on the qualities and capabilities of an environment that enable people to work and live. Poor habitability can impact productivity, safety, well-being, and performance.The International Space Station (ISS) Operational Habitability Project has been established to address the increased role of habitability for ISS. The primary objective of the project is to establish a pool of data from which opinions and decisions for judging and improving habitability on ISS will be generated. The main activities of the project are to:1) collect and interpret data related to habitability on ISS; 2) identify Operational Habitability Lessons Learned; and 3) provide data summaries, judgments, and recommendations for the improvement of habitability. As an example, the ISS operational Habitability Project has provided significant inputs to a current ISS issue regarding stowage. In this situation, a lack of prioritization on habitability resulted in a less than ideal situation. Operational Habitability data from previous missions was identified and summarized to provide inputs to assist in working the issues toward a resolution that supports habitability on ISS.